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BEHAVIORAL RESEARCH DURING THE 1963 AMERICAN
MOUNT EVEREST EXPEDITION

James T. Lester, Jr., Ph.D.

Final Report
September, 1964.

Prepared in connection with research done under
✓Contract Nonr 3930 (00)
NR 171-257
Group Psychology Branch
Office of Naval Research

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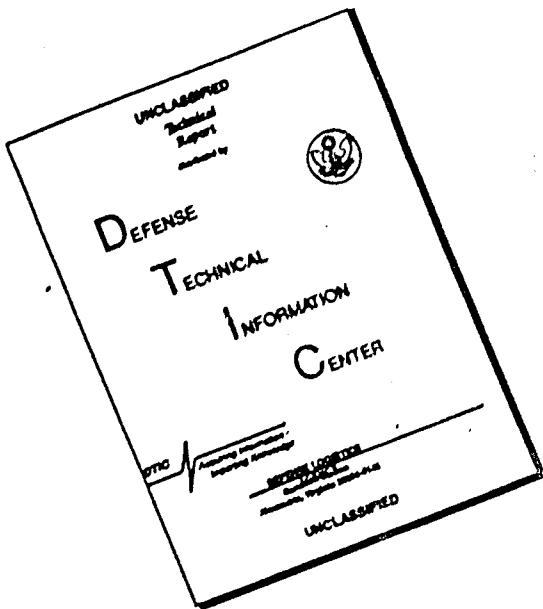
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I. ACKNOWLEDGEMENTS

I would like to express again my deep appreciation to the members of the Everest team, for their sustained cooperation with a program of data collection that was tedious, if not mysterious, for them. I feel now that lacking a number of the personal qualities reported upon in this paper (qualities which I had no prior reason to count on in the group) this study could not have been carried out.

I am most grateful for the generosity, in terms of time, experienced judgement, friendly encouragement, and comfortable office space, accorded me by the Institute of Personality Assessment and Research, University of California, Berkeley, in the persons of its director (Dr. Donald MacKinnon), co-director (Dr. Harrison Gough), and staff (Dr. Wallace Hall, Dr. Ravenna Helson, Dr. Richard Crutchfield, Dr. Kenneth Kraik, Dr. Frank Barron and Mr. Quintin Welch). Mr. Welch in particular deserves my gratitude for his help with most of the statistical analyses.

The clerical assistance of Miss Julia Levanti and Miss Janice Nakao has saved me enormous amounts of time, as well as concern over my own accuracy in these matters.

II. INTRODUCTION

A. Brief Description of the Project

As described in more detail in the first Annual Report, October 1963, this project was designed to take advantage of an unusual opportunity to observe men under presumably severe real-life stress, namely the American Mount Everest Expedition of 1963. An extensive personality assessment was done before the team left this country; the Principal Investigator accompanied the team to the mountain and made informal observations of the men in the field; team members filled out various questionnaires and rating scales before, during, and after the Expedition. This data collection program was meant to give information concerning individual personality structures and dynamics, reactions to actual stress, interpersonal behavior in the field, and the process of developing stable interpersonal relationships within the group, as this process has been conceived and studied by Newcomb (17).

B. Note on Termination of Present Contract

The contract, under which the above work was begun, was between the Office of Naval Research and the American Mount Everest Expedition, with the author as Principal Investigator; this contract terminated on August 31, 1964. Thus with regard to this contract the present report is both the second Annual Report and the Final Report. However, the work is by no means

completed, and will be carried on for a third year under a grant from ONR to the Berkeley Institute of Psychological Research (a private, non-profit corporation of which the author is currently acting Director).

C. Status of the Work

As of August 31, 1964, work completed includes the following:

1. The extensive assessment procedures have all been scored, and means, standard deviations, and ranks, have been figured. For certain techniques the data have been prepared for computer analysis and the bulk of these analyses has been run.
2. The many ratings, ranking, and questionnaire responses have been tallied and processed into forms appropriate for the planned analyses into which they enter. Some of these analyses have been carried out; the rest are in progress.

D. Rationale of this Report

The remainder of this report will be devoted to a characterization of the subjects in this study, as a group, and largely in terms of central tendencies on various assessment procedures.

While the assessment data were collected primarily to provide a pool of information about individual differences, still there are three reasons for devoting this report to a group characterization.

1. The data processing has not yet gone far enough to allow reporting concerning individual differences and co-variations among different techniques, though this is planned; but it has produced the indications of central tendency and variability necessary for describing the group as a whole.
2. Given the rare experiences and unusual skills and motivations which qualified men for this Expedition, it is of some interest to know what similarities can be found among them, and how as a group they compare with other groups.
3. Knowledge of the relationship of the group's scores on various techniques to those of other groups that have been studied with the same techniques is desirable as context and background for later analyses of individual differences and of processes occurring within the group.

The description of the Everest group that follows in no way implies that this group is considered as representative of American mountaineers in general; it may or may not be.

In these descriptions no significance tests are included, since the aim is not to test any hypotheses about this group qua group, but is rather to provide a group characterization along the lines of an individual clinical report. Although a number of inferences concerning similarities within the group are made, still it must be stressed that on most observed variables individual differences were gratifyingly large, ("gratifying" because such differences are the main focus of the study), and the descriptions below fit given individuals only to a greater or lesser degree, in many cases the latter.

III. DESCRIPTION OF THE SAMPLE

A. Demographic Variables
(as of departure time)

1. Age. The average was 33.11 years, with a range from 26-9 to 44-8. Seven men were in their twenties, seven in their thirties, and three in their forties. Of the five men who were in successful summit parties (there were no unsuccessful summit parties) one was in his twenties, four in their thirties.
2. Education. There was only one subject in the group who had not obtained at least a bachelor's degree, and he had completed 2½ years of college. Three had stopped at the bachelor's level; three more had taken some graduate work without obtaining an advanced degree. Three had obtained Master's degrees, and of these one was currently working on a Ph.D. Four held Ph.D. degrees, and three held M.D.s. While it is somewhat difficult to classify their college majors, it can be said that eight subjects majored in the area of mathematics and the physical sciences, six majored in professional or technical areas (such as medicine, journalism, cinema, theater, speech, physical education), two in the social sciences (sociology and economics), and one in philosophy. Five of the subjects joined a social fraternity during college.
3. Marital status. Only two of the subjects were single at the time of departure; of the remaining 15 married ones, two were married for the second time. The average number of

children per family was 1.41 (three had no children, four had one child or step-child, seven had two children or step-children, and one had five children).

4. Religious affiliation.* Seven subjects responded that they had no affiliation, and most of these added that they wanted none, in effect. Seven indicated they thought of themselves as Protestants, and two as Catholics (or semi-Catholic, as one put it).

Thirteen came from predominantly Protestant backgrounds, one from a Catholic, and one from a Jewish, family.

5. Political preference.* Five subjects professed a Democratic preference, of whom three indicated it was merely a leaning. Nine professed a Republican preference, of whom two added it was a weak preference. Two had no preference.

6. Siblings, primary family. The average number of siblings was 1.31 (four had no siblings, four had one sibling, seven had two siblings, and one had three siblings). The average number of younger siblings was .44, while the average number of older siblings was .88 (only six subjects had no older siblings, while 11 had no younger siblings, and seven had one older while only three had one younger).

* Data for one subject is missing on this variable.

B. Subjects Responses to Assessment Procedures

Not all of the information obtained from and about the subjects will be summarized here. The purpose of the report is simply to characterize the group, and a selected set of variables will suffice to convey the general picture. Data not presented here is of course available upon request.

(B) 1. intellectual-cognitive techniques

a. Terman Concept Mastery Test. This is a difficult, high-level test of verbal intelligence, (19). Perhaps the most graphic way of placing this group's average score in context is to relate it to scores made by other groups of special interest (Table 1). Note that these scores are not IQ scores. Comparative data is from reference 13, Page 11.

Table 1

The Terman Concept Mastery Test, Form T

Mean Scores and Standard Deviations for Various Groups

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Creative Writers	20	156.4	21.9
Subjects, Stanford Gifted Study	1004	136.7	28.5
Graduate Students	125	119.2	33.0
Research Scientists	45	118.2	29.4
Creative Architects (top of 3 levels)	40	113.2	37.7
College Graduates	25	112.0	32.0
Undergraduate Students	201	101.7	33.0
Spouses of Gifted Subjects	690	95.3	42.7
EVEREST TEAM	16	95.2	26.8
Electronics Engineers and Scientists	95	94.5	37.0
Engineering College Seniors	40	80.4	27.9
Military Officers	344	60.3	31.6
Independent Inventors	14	50.8	34.7

b. D 48 Test. This is an almost entirely non-verbal test of intellectual ability, heavily loaded with g, and widely used in Europe although not well-known in this country (18,10). It was included in the assessment on an experimental basis, and to help provide some normative data on American subjects. The comparisons presented in Table 2 below (from reference 10) are naturally somewhat ambiguous, as all but one of the comparison samples are comprised of European subjects, but they are nevertheless interesting.

Table 2

The D 48 Test.

Mean Scores and Standard Deviations for Various Groups

<u>Group</u>	<u>N.</u>	<u>Mean</u>	<u>S.D.</u>
Graduates in Engineering (Italy)	160	32.46	4.67
EVEREST TEAM	16	31.00	5.90
High School Seniors, Male (France)	73	30.70	5.04
Engineers and Military Officers (France)	118	30.34	5.11
College Students, Male (U.S.)	42	30.29	5.34
Graduates in Science (Italy)	28	30.71	5.10
Graduates in Jurisprudence, Letters and Philosophy (Italy)	28	27.96	5.98
University Students, Male (Italy)	100	26.70	5.60
Students, both sexes, age 16-6 and over (Belgium and Switzerland)	87	25.57	6.72
Students, both sexes, ages 11 - 13 (France)	78	20.76	5.36
Primary School Graduates, Male (France)	307	14.25	6.06

c. General Information Survey. This survey is made up of items covering 16 categories such as cultural lore, folk knowledge, music, athletics, recreations, etc., stressing non-

intellectualized aspects of personal acculturation, and designed to assess the individual's range of information (8). This variable would seem to be one regarding which people normally make judgements of one another and which has importance in everyday social situations.

Table 3
 General Information Survey, Form A
 Means and Standard Deviations for Various Groups

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>
Research Scientists and Engineers	45	46.1	8.6
Medical School Seniors	39	43.7	7.8
Architects	40	42.2	6.6
Medical School Applicants	70	40.7	7.6
EVEREST TEAM	16	38.3	5.3
Upper Division Undergraduates, Male	37	37.9	7.2
Freshman Undergraduates, Male	184	37.4	7.4
Military Officers	311	36.5	8.8

d. Watson-Glaser Critical Thinking Appraisal. According to the authors (20), ability to think critically involves three things: 1) an attitude of wanting to have supporting evidence before assuming conclusions to be true; 2) knowledge of the methods of logical inquiry; and 3) skill in employing the above attitude and knowledge. The items of the test "are mostly of a realistic type, involving problems, statements, arguments, and interpretation of data similar to those which a citizen in a democracy might encounter in his

daily life as he works, reads the newspaper, hears speeches, participates in discussions on various issues, et cetera" (20, p. 1). The technique is "not an intelligence test as such", and correlation coefficients with various intelligence tests are reported (20, p. 9) to cluster around .45. Median scores of the Everest team and of various comparison groups (from reference 20, p. 7) are presented in Table 4.

Table 4
 Watson-Glaser Critical Thinking Appraisal
 Median and Range of Scores for Various Groups

<u>Group</u>		<u>W-G CTA Total Score</u>		<u>N</u>
		<u>Median</u>	<u>Low</u>	<u>High</u>
Trainees (Carefully Selected, Superior Group, College Graduates, Advanced Training, 1-4 years Work Experience	79	65	87	10
EVEREST TEAM	79	64	86	16
Graduate Students, Ph.D. in English	76.5	59	88	16
College Freshmen applying for Sophomore Status	70.6	25	88	1940
School of Education Students, mostly Juniors	69.3	31	88	447
College Senior English Students	69.0	53	84	21
Senior College Students	68.0	38	83	24

e. Chapin Social Insight Test. This technique is comprised

of 25 problems, each describing a rather complex incident of social conflict or personal strife; the subject is asked to consider the situation and to make a diagnostic evaluation or to recommend a course of action. A comparison between this group and several others is given in Table 5 (comparison data is from files of the Institute of Personality Assessment and Research).

Table 5
 Chapin Social Insight Test
 Means and Standard Deviations for Various Groups

<u>Group</u>	<u>N.</u>	<u>Mean</u>	<u>S.D.</u>
Psychology Graduate Students	72	29.08	4.08
Bank Managers	26	28.15	4.37
Engineering Students, Honor Society	66	26.32	4.85
Research Scientists	45	26.22	7.01
EVEREST TEAM	16	25.94	4.28
Business Executives	67	23.97	5.11
Military Officers	343	23.65	4.62

(B) 2. vocational interest patterns

This area was assessed by means of the Strong Vocational Interest Blank. At this writing only averages are available and only for the variables listed in Table 6.

Table 6
Strong Vocational Interest Blank

Means on Several Occupational Groupings and Special Scores

<u>Variable</u>	<u>Mean</u>
Group I (artist, psychologist, architect, physician, etc.)	51.41
Group II (mathematician, physicist, chemist, engineer)	46.59
Group V (personnel manager, public administrator, social worker, school superintendant, etc.)	40.59
Group IX (sales manager, real estate salesman, life insurance salesman)	30.29
Group VIII (accountant, office worker, credit manager, purchasing agent, etc.)	14.47
Specialization Level	51.94
Occupational Level	58.41
Masculinity-Femininity	48.12

Table 7 presents a frequency count of subjects obtaining A or Bplus scores, as well as C and Cplus scores, in the various individual occupations comprising the Occupational Groups to which this group responded most and least similarly (Groups I and VIII respectively). In terms of S.V.I.B. responses, the Everest climbers were most like physicians, psychiatrists and psychologists, and least like bankers, morticians and pharmacists.

Table 7

Numbers of subjects obtaining High (A or Bplus) and Low (C or Cplus) scores in the specific categories of Occupational Groups I and VIII

<u>Occupational Category</u>	<u>High</u>	<u>Low</u>	<u>Occupational Category</u>	<u>High</u>	<u>Low</u>
<u>Group I:</u>			<u>Group VIII:</u>		
Physician	13	1	Banker	0	17
Psychiatrist	13	1	Mortician	0	17
Psychologist	11	1	Pharmacist	0	16
Osteopath	11	4	Office Worker	0	15
Artist	8	2	Purchasing Agent	0	15
Architect	8	2	Accountant	0	15
Dentist	5	5	Credit Manager	2	9
Veterinarian	0	13	Senior C.P.A.	3	9

(B) 3. attitude and value assessment

a. Ten General Values. The following phrases, descriptive of values to which each might be expected to attach some degree of importance, were presented to the subjects for ranking in the order of their importance to them. The ranks assigned each value were summed for all the subjects, and these totals were ranked, giving the rank-order of the values for the group shown in Table 8. These rankings were collected from the subjects primarily for the purpose of inter-individual comparisons, and no normative data is known to be available on other groups.

Table 8

Ten General Values

Ranks of sums of ranks assigned by all subjects, and means of ranks assigned

<u>rank of sums</u>	<u>mean rank assigned</u>	<u>S.D.</u>	<u>value</u>
1	2.59	1.82	Being successful in your family life (wife, children)
2	2.65	2.32	Being successful in your chosen occupation
3	3.41	2.01	Being intellectually capable and increasing your knowledge
4	5.00	2.28	Being able to help other persons in this world
5	5.82	1.79	Working cooperatively with people
6	6.47	2.00	Doing a thorough and careful job
7	6.82	1.65	Being well-liked by other persons
8	6.94	2.39	Being a normal, well-adjusted person
9	7.41	1.11	Living in accordance with religious principles
10	7.88	1.91	Being successful in financial arrangements

Rhos showing similarity of ranking among all possible pairings of subjects range from -.53 to .94, so that while there was a certain amount of group consensus about the relative importance of these ten values, there was also considerable individual variation.

b. The Six Spranger Values. Subjects were asked, both before and after the Expedition, to rank the six values in order of their importance to them. Again, this was done primarily for inter-person (and not for inter-group) comparison, but the resulting average rankings help to characterize the group. Table 9 presents this data for the earlier ranking.

Table 9
The Six Spranger Values

Ranks of sums of ranks assigned by all subjects, and means of ranks assigned

<u>rank of sums</u>	<u>mean rank assigned</u>	<u>Value</u>
1	2.44	<u>Theoretical</u> (interested primarily in empirical, critical, or rational matters - observing and reasoning, ordering and systematizing, discovering truths)
2	2.62	<u>Aesthetic</u> (interested primarily in beauty, in form and harmony for its own sake - an artistic interpretation of life)
3	3.19	<u>Social</u> (interested primarily in other human beings - human relationships and love are very important)
4	4.13	<u>Political</u> (interested primarily in power and influence - leadership and competition are key-words descriptive of such an interest)
5	4.25	<u>Religious</u> (interested primarily in the satisfaction and meaning to be derived from religious experiences - interested in relating oneself to the unity of the universe as a whole)
6	4.38	<u>Economic</u> (interested primarily in that which is useful and practical, especially the practical affairs of the business world - judge things by their tangible utility)

Once again, although there is a tendency toward a consensus,

Individual differences are important, as indicated by the range of inter-person correlations (*rho*): -.94 to .94. Individual correlations between own earlier and later rankings (18 months later) ranged from -.09 to 1.00.

c. Allport-Vernon-Lindzey Study of Values. This well-known technique (1) yields scores on the six Spranger value areas discussed above. We are thus able to compare these scores with a) the normative sample. and b) the ranks subjects assigned to names of the value areas. Table 10 compares average scores and ranks of these scores for the Everest group with published averages (and their ranks) for college males (from reference 1).

Table 10

Allport-Vernon-Lindzey Study of Values

Comparison of Means (and their Ranks) and Standard Deviations for Everest Group and College Males

<u>Value</u>	<u>College Males</u>			<u>Everest Team</u>				
	<u>N</u> = 2489	<u>mean</u>	<u>rank</u>	<u>S.D.</u>	<u>N</u> = 14	<u>mean</u>	<u>rank</u>	<u>S.D.</u>
Theoretical	43.75	1	7.34		49.43	1	6.89	
Aesthetic	35.09	6	8.49		47.14	2	8.99	
Political	42.94	2	6.64		43.93	3	6.20	
Economic	42.78	3	7.92		34.21	4	10.76	
Religious	38.20	4	9.32		33.93	5	13.28	
Social	37.09	5	7.03		31.57	6	7.20	

Relative to college males the Everest team valued the Aesthetic and Theoretical areas higher, and the Economic and Social areas lower, in terms of absolute scores.

If, instead of absolute scores, one considers the relative importance assigned to the value areas by the two groups (rank order of average scores), the major discrepancy is seen to occur about the Aesthetic area - the Everest team assigning it higher relative (as well as absolute) value.

But it would be helpful to compare this group with others more similar to it with respect to such matters as educational level and degree of specialization. Table 11 presents some relevant data from the Institute of Personality Assessment's studies of creativity in several professions.

Table 11

Allport-Vernon-Lindzey Study of Values

Means of Various Groups, and Rank of each Group's Mean on Each Value within its own Set of Six Means

<u>Group</u>	<u>N</u>	<u>Theoretical</u>	
		<u>mean</u>	<u>rank</u>
Research Scientists	45	57.0	1
Architects I (most creative)	40	50.8	2
EVEREST TEAM	16	49.4	1
Architects II (middle creative)	43	47.8	2
Architects III (least creative)	41	47.0	2
		<u>Aesthetic</u>	
		<u>mean</u>	<u>rank</u>
Architects I		56.2	1
Architects II		52.9	1
Architects III		47.7	1
Research Scientists		47.5	2
EVEREST TEAM		47.1	2

	<u>Political</u>	
	<u>mean</u>	<u>rank</u>
EVEREST TEAM	43.9	3
Research Scientists	41.9	3
Architects I	40.0	3
Architects III	39.4	3
Architects II	39.0	3
	<u>Economic</u>	
	<u>mean</u>	<u>rank</u>
Architects III	38.4	5
Research Scientists	36.3	4
Architects II	35.9	4
EVEREST TEAM	34.2	4
Architects I	28.4	6
	<u>Religious</u>	
	<u>mean</u>	<u>rank</u>
Architects III	38.8	4
Architects I	34.8	4
Architects II	34.5	5
EVEREST TEAM	33.9	5
Research Scientists	28.1	6
	<u>Social</u>	
	<u>mean</u>	<u>rank</u>
EVEREST TEAM	31.6	6
Architects II	29.9	6
Architects I	29.8	5
Research Scientists	29.1	5
Architects III	29.0	6

What seems to be reflected in Table 11 is the following:

While there is considerable agreement among "educated" men in the rank order of these six values, level of education or specialization makes a difference and is associated with a higher rank assigned to the Aesthetic area, and a lower rank to the Economic and possibly the Political areas. Within the specialized groups, the Everest team showed a not surprising

tendency to align itself more with the Research Scientists than with the most creative architects.

Table 12 shows the ranks of average scores on the six values (AVL), and average ranks assigned by these subjects to the same six values. The correlation reflected in the table is .60.

Table 12

Comparison of ranks obtained from scores on AVL with ranks obtained from simple ranking of the six values

<u>Value Area</u>	<u>AVL</u>	<u>Ranking</u>
Theoretical	1	1
Aesthetic	2	2
Political	3	4
Economic	4	6
Religious	5	5
Social	6	3

Without arguing that AVL scores are necessarily more valid than the simple rankings, as indications of a behavioral hierarchy of values, we may note that relative to their test scores (which show a close relationship to personality test results to be reported) the group as a whole overestimated the importance of the Social area, and underestimated the importance of the Economic area.

d. California E (Ethnocentrism), F (Fascism), and PEC (Political-Economic-Conservatism) Scales. Table 13 presents averages on these three "authoritarian" scales. However, the comparison

groups presented are simply those for whom figures were at hand (from I.P.A.R. files) and do not reflect recent literature. Nevertheless, some idea can be gained from the table as to resemblances between this group and selected others.

Table 13
California Authoritarian
Scales

Means and Standard Deviations for Various Groups

<u>Group</u>	<u>N</u>	<u>mean E</u>	<u>S.D.</u>	<u>mean F</u>	<u>S.D.</u>	<u>mean PEC</u>	<u>S.D.</u>
Military Officers	100	66.90	18.34	121.90	43.32	47.71	6.20
College Students	67	47.40	18.70	-	-	-	-
EVEREST TEAM	16	39.20	11.08	88.33	20.59	43.00	8.73
Graduate Students	80	35.35	13.40	80.12	22.24	31.00	10.00

e. Adjective Check List (checked to describe the "ideal climber"). The particular check list used was Gough's (11), which yields standard scores on 24 scales (based on norms in a college population). The average scale scores are being reported in this section since they represent the extent to which various personal characteristics (derived and named from clusters of adjectives) are valued by the group in an abstract ideal climber.

Table 14

Gough Adjective Check List
(describing the "ideal climber")Scales on which mean standard score was above that of normative group (v' > 0):

	<u>mean</u>	<u>S.D.</u>
Intraception (attempts to understand behavior)	66.07	4.36
Endurance	65.53	5.02
Achievement	63.33	5.34
Number of Favorable Adjectives Checked	62.13	4.91
Defensiveness (strives for good impression)	61.80	3.33
Dominance	61.67	4.88
Self-Confidence	60.80	7.65
Order (neatness, organization, planning)	60.73	3.96
Personal adjustment	59.87	5.03
Self-Control	57.33	5.44
Nurturance (extends material or emotional benefits)	56.33	4.96
Affiliation	55.73	5.50

Scales on which mean score was intermediate:

Exhibition (desire to elicit immediate attention)	53.73	5.64
Change (seeks novelty, avoids routine)	50.87	6.15
Lability (inner restlessness)	53.20	6.48
Total Number of Adjectives Checked	50.20	4.66
Autonomy	48.80	5.94
Heterosexuality	47.73	5.42
Aggression	46.07	4.61

Scales on which mean score was below that of normative group:

Deference	44.80	7.98
Abasement	43.60	4.19
Number of Unfavorable Adjectives Checked	40.93	0.75
Succorance (solicits sympathy, affection, support)	38.27	1.69
Counseling Readiness	35.67	4.51

(B) 4. personality - personal style - self-image

a. Adjective Check List (checked to describe self). This is the same list of adjectives used to describe the "ideal climber". Table 15 indicates the average score on the 24

variables, and for ease of comparison repeats the average scores obtained under the "ideal climber" set.

Table 15

Gough Adjective Check List
(describing self)

Scales on which mean standard score was above that of normative group (viz 50)

	"ideal" <u>mean</u>	self <u>mean</u>	<u>S.D.</u>
Achievement	63.3	57.2	7.65
Dominance	61.7	55.8	9.76
Intraception	66.1	55.7	9.66
Defensiveness (good impression)	61.8	54.8	6.93
Self-Confidence	60.1	54.8	10.97
Autonomy	48.8	54.6	9.96
Liability (inner restlessness)	53.2	54.6	10.12
Endurance	65.5	54.2	9.86

Scales on which mean score was intermediate:

Number of favorable adjectives checked	62.1	52.1	8.77
Order	60.7	51.9	7.88
Change	50.9	51.6	9.30
Aggression	46.1	51.2	11.01
Affiliation	55.7	49.9	9.29
Personal Adjustment	59.9	49.2	8.54
Total number of adjectives checked	50.2	48.8	4.75
Nurturance	56.3	48.1	11.19
Self-Control	60.8	47.8	9.08
Exhibition	53.7	47.8	11.49
Number of unfavorable adjectives checked	40.9	47.5	7.41
Counseling Readiness	35.7	46.5	10.59
Heterosexuality	47.7	46.4	11.94

Scales on which mean score was below that of normative group:

Deference	44.8	43.5	10.27
Abasement	43.6	42.1	7.57
Succorance	38.3	39.6	4.50

The ways in which the group sees itself differently from the way the normative group saw itself seem quite consistent with the qualities one might expect in climbers, selected for an attempt on Mt. Everest; the moderately high elevation of Intraception might not have been anticipated, but it is quite consistent with other information about the men.

Comparing their mean scores between the "self" and "ideal" sets suggests that at departure time the Everest team was willing to present itself as falling somewhat short of its own ideals, with respect to Self-Confidence (-13.0), Endurance (-11.3), Personal Adjustment (-10.7), Intraception (-10.4), and simply with respect to the number of favorable adjectives checked (-10.0). On the other hand, their "self" scores were higher than their "ideal" scores with regard to Counseling Readiness (plus 10.8), simply the Number of Unfavorable Adjectives Checked (plus 6.6), Autonomy (plus 5.8), and Aggression (plus 5.1).

b. California Psychological Inventory. This is a true-false type inventory, designed to measure a set of variables "which possess broad personal and social relevance", "which are related to the favorable and positive aspects of personality rather than to the morbid and pathological", and which reflect "personality characteristics important for social living and social interaction", (9, p. 2). Mean scores of the present group may be compared with both the normative group (over 6000 males of a variety of ages, socio-economic groups, and geo-

graphical areas) and with various other special samples.

The first comparison is effected simply by presenting mean standard scores for this group, and noting that, for the normative group, the mean on each scale is 50. The scales of the test are grouped by Gough into four a priori classes; each class is presented separately in Table 16.

Table 16

California Personality Inventory

Everest Team: Means and Standard Deviation of Standard Scores

<u>Scales</u>	<u>mean</u>	<u>S.D.</u>	<u>range</u>
Class I: Poise, Ascendancy, and Self-Assurance			
Dominance	62.0	7.90	52-71
Capacity for Status	51.8	7.49	46-73
Social Presence	59.8	9.19	37-72
Self-Acceptance	59.6	7.88	44-71
Sense of Well-Being	56.6	7.40	39-66
Sociability	51.2	9.99	37-69
Class II: Socialization, Maturity, and Responsibility			
Tolerance	59.2	6.72	48-69
Responsibility	52.2	6.66	38-62
Self-Control	51.4	10.81	34-68
Communality	50.5	-	40-58
Good Impression	48.4	-	30-72
Socialization	47.4	8.69	33-59
Class III: Achievement Potential and Intellectual Efficiency			
Achievement (via Independence)	64.6	8.62	48-77
Intellectual Efficiency	59.2	6.07	47-71
Achievement (via Conformance)	57.4	8.09	42-68

Class IV: Intellectual and Interest Modes

Psychological-Mindedness	64.8	8.68	54-82
Flexibility	60.4	9.26	39-76
Femininity	49.6	9.59	32-67

The CPI profile based on the above figures is elevated on almost every scale, and is indicative of a generally high level of functioning. As the scales in Class I usually show moderately high correlations it is not surprising to find most of them (except Sociability) elevated. But as the scales on which the peak elevations in Classes III and IV occur are not so highly correlated with those of Class I, then given the generally high level of Class I scores, the concomitant high levels on Achievement, Psychological-Mindedness, and Flexibility reflect an unusual combination of qualities. Similarly, the relatively low score on Sociability, which one would expect to be more in the same range with the other Class I scores, more definitely indicates some psychological distinction between this group and others.

Perhaps more of the flavor of the psychological picture implied by the mean CPI profile for this group can be obtained by listing (from 9) the way in which High scorers on some of the scales tend to be seen by others. The scales chosen for listing below (Table 17) are those on which the Everest team obtained obviously high scores.

Table 17
California Personality Inventory

Listing of Characteristics Frequently Perceived in Persons
Obtaining High Scores, on 9 Scales on which Everest Means
Were High

<u>Scale</u>	<u>High Scorers Tend to be Seen as:</u>
Psychological-Mindedness (64.8)	Observant, spontaneous, perceptive, changeable; verbally fluent and socially ascendant; rebellious toward rules, restrictions and constraints.
Achievement via Independence (64.6)	Mature, forceful, strong, dominant, demanding, and foresighted.
Dominance (62.0)	Aggressive, confident, persistent and planful; persuasive and verbally fluent; self-reliant and independent; leadership potential and initiative.
Capacity for Status (61.8)	Ambitious, active, forceful, insightful, resourceful, and versatile; ascendant and self-seeking; effective in communication; having personal scope and breadth of interests.
Flexibility (60.4)	Insightful, adventurous, confident, humorous, rebellious, idealistic, assertive, and egoistic; sarcastic and cynical; highly concerned with personal pleasure and diversion.
Social Presence (59.8)	Clever, enthusiastic, imaginative, quick, informal, spontaneous, and talkative; active and vigorous; having an expressive, ebullient nature.
Self-Acceptance (59.6)	Intelligent, outspoken, sharp-witted, demanding, aggressive, and self-centred.
Tolerance (59.2)	Enterprising, tolerant, clear-thinking; intellectually able.
Intellectual Efficiency (59.2)	Efficient, capable, progressive, planful, thorough; alert and well-informed; as placing a high value on cognitive and intellectual matters.

There are two scales on which this group's mean was obviously below their own generally high level. While these two means certainly do not put this group in the category of "low scorers" on these scales, still in order to balance the picture given in Table 17, and because it seems to me that the behavioral sketches convey at least something of behavior actually observed in the field, Table 18 presents the way in which Low Scorers on these scales are frequently seen by others.

Table 18

<u>Scale</u>	<u>Low Scorers Tend to be Seen As:</u>
Socialization (47.4)	Defensive, demanding, opinionated, resentful, stubborn, headstrong, rebellious, and undependable.
Good Impression (48.4)	Inhibited, cautious, shrewd, wary, aloof; cool and distant in relationships with others; self-centered.

Undoubtedly numerous other groups would also score High on many of the same scales; so as a final technique for evoking the implications of the CPI results for this group as a whole, Table 19 lists a number of groups ranked according to an index of their profile-similarity to the Everest group. The index is D^2 (6), and is obtained simply by finding the difference for each scale between the original (Everest group) and a comparison group, in terms of standard scores, and squaring this difference. The sum of the 18 D^2 's for each comparison group

is the index of similarity in Table 19; normative data is from Gough's CPI Manual (9).

Table 19
California Personality Inventory

Comparison of Mean Profile for Everest team with Male Samples

<u>Sample</u>	<u>N</u>	<u>D²</u>
Research Scientists	45	105
Psychiatric Residents	262	166
Architects	124	370
Psychology Graduate Students	117	415
City School Superintendents	144	522
Practicing Dentists	59	570
Bank Managers	25	617
Military Officers	343	646
Business Executives	107	696
Salesmen	85	1002
Correctional Officers	192	1525
Machine Operators	105	1621
Prison Inmates	194	4924

c. Edwards Personal Preference Inventory (EPPS). This technique (7) provides measures of 15 relatively independent normal personality variables based on the conceptualization of manifest needs of Murray (14). Table 20 lists the scales,

with abbreviated descriptions of the associated needs, in the order in which the Everest group showed the most distinctiveness from the normative group (760 male college students).

Table 20
 Edwards Personal Preference Inventory
 Means and Standard Deviations of Standard Scores for Everest Group

Scales on which mean score was above that of normative group (viz 50):

	<u>mean</u>	<u>S.D.</u>
<u>Achievement</u> : to be successful, to accomplish tasks requiring skill and effort, to accomplish something of great significance, to be able to do things better than others	59.20	6.20
<u>Endurance</u> : to complete any job undertaken, to work hard at a task, to work at a single job before taking on others.	56.26	8.87
<u>Autonomy</u> : To be able to come and go as desired, to say what one thinks about things, to avoid situations where one is expected to conform, to be independent of others in making decisions.	54.40	10.16
<u>Change</u> : To do new and different things, to travel, to experience novelty and change in daily routine, to eat in new and different places (!)	53.40	8.78

Scales on which mean score was intermediate:

Heterosexuality	52.54	11.70
Dominance	52.34	6.54
Order	48.86	10.79
Deference	48.46	10.33
Aggression	47.86	9.54
Exhibition	47.41	10.08
Intraception	47.06	10.11

Scales on which mean score was below that of normative group:

<u>Succorance</u> : To have others be kindly, sympathetic and understanding, to seek encouragement from others, to have a fuss made over one when hurt.	46.80	5.45
<u>Affiliation</u> : To participate in friendly groups, to do things for friends, to share things with friends, to form strong attachments.	45.60	9.31
<u>Nurturance</u> : To help friends when they are in trouble, to treat others with kindness and sympathy, to sympathize with others who are hurt or sick, to have others confide in one about personal problems.	44.14	10.54
<u>Abasement</u> : To feel guilty when one does something wrong, to accept blame when things do not go right, to feel better when giving in and avoiding a fight than when having one's own way, to feel inferior to others in most respects.	41.40	9.11

d. Myers-Briggs Type Indicator. The purpose of this technique is "to implement Jung's theory of type. The gist of the theory is that much apparently random variation in human behavior is actually quite orderly and consistent, being due to certain basic differences in the way people prefer to use perception and judgement." "...the Indicator aims to ascertain, from self-report of easily reported reactions, people's basic preferences in regard to perception and judgement ..." (15, p. 4). Scores on each of four indices are intended to reflect an habitual choice between opposites (as opposed to placement on a continuum between extremes): Extraversion-Introversion, Sensing-Intuition, Thinking-Feeling, and Judgement-Perception.

The pattern of choices on these indices indicates the individual's type; e.g., ISTJ. "The theory attaches no a priori value judgement to one preference as compared with another, but considers each one valuable and at times indispensable in its own field" (15, p.5). Table 21 describes the way in which this group divided itself on each of the four indices, in terms of percentages.

Table 21

Myers-Briggs Type Indicator

Percentage of Group Falling in Each of 8 Possible Preference Categories

<u>Preference</u>	<u>%</u>
<u>Extraversion</u> : directs perception and judgement upon environment	35
<u>Introversion</u> : directs perception and judgement upon world of ideas	65
<u>Sensing</u> : one of two kinds of perception	18
<u>Intuition</u> : one of two kinds of perception	82
<u>Thinking</u> : one of two kinds of judgement	65
<u>Feeling</u> : one of two kinds of judgement	35
<u>Judgement</u> : one of two kinds of attitudes for dealing with environment (may be the interior environment)	47
<u>Perception</u> : the alternative attitude	53

The modal type for the group, then, is INTP, with the tendency most ambivalent for the J-P choice. As sensing-intuiting is generally found to be correlated with judging-perception, the fact that this group is evenly split on the

latter and not on the former makes its preference for intuition particularly noteworthy. The INTP pattern is quite consistent (according to studies reported in the manual) with this group's Allport-Vernon-Lindzey, Strong VIB and Edwards PPS scores, and with its predominant type of occupation. Briefly abstracted from the manual, some of the personological implications of the INTP modal type structure are as follows:

Introversion (65%): The introvert's main interests are in the inner world of concepts and ideas, while the extravert's are in the outer world of people and things. When circumstances permit, the introvert directs both his perception and his judgement upon ideas. A well-developed introvert can deal ably with the world around him when necessary, but does his best work inside his head, in reflection. He will tend to have depth and concentration, and he will not be easy to understand.

Intuition (82%): When people prefer intuition as their form of perception, they are too much interested in all the possibilities that occur to them to give a whole lot of notice to the actualities. They tend to have insight and ability to grasp complicated matters. They enjoy learning a new skill more than using it, are impatient with routine details, and follow their inspirations, good or bad.

Thinking (65%): Thinking is a logical process, aimed at an impersonal finding; the alternative is feeling, which is a process of appreciation, bestowing on things a personal, subjective value. If in judging ideas one concentrates on whether or not they are true, that is thinking-judgement (feeling -

judgement would produce first a consciousness of like or dislike, of whether the ideas are sympathetic or antagonistic to other ideas one prizes.) The capacity for analysis and logic is more developed than the capacity for devotion and sympathy. One of this type needs more to be "treated fairly" than he needs "praise". As he cares more about effectiveness than about harmony, he may hurt others' feelings without knowing it.

Note on Intuition Combined with Thinking. This type focusses on possibilities (rather than facts), and approaches them with impersonal analysis (rather than in the spirit of a search for inspiration). Often the possibility they choose is a theoretical, technical, or executive one, with the human element subordinated.

Perception-Judgement: As the group is nearly everly split on this dichotomy, it will not be discussed here.

e. MMPI (clinical scales). Scale averages expressed in standard scores (as interpolated from the profile sheet) are presented in Table 22, ranked as to order of magnitude; as standard deviations of the obtained standard scores are not yet available, ranges will indicate dispersion.

Table 22
Minnesota Multiphasic Personality Inventory

Standard Score Equivalents of Mean Scores (with K factor added) on the Clinical Profile, Ranked in Order of Magnitude

<u>Scale #</u>	<u>Name</u>	<u>Mean</u>	<u>Range</u>
5	Masculinity-Femininity	65	49-82
K	(Test-taking Attitude)	61	46-75

3	Hysteria	58	48-71
4	Psychopathic Deviate	57	34-69
8	Schizophrenia	57	42-65
2	Depression	56	41-65
9	Manic	55	35-70
F	(Validity, or unusual responses)	55	44-64
7	Psychastenia	54	42-64
6	Paranoia	53	33-65
0	Social Introversion	50	40-70
1	Hypochondriasis	49	41-62
L	(Lie)	46	40-56

The group profile shows at least a moderate elevation on all scales except L and Hs; group elevations of this degree have been interpreted (13, p. 21) as suggestive of good intellect, richness and complexity of personality, and a general lack of defensiveness. Both the elevation and the shape of the profile is quite similar to that found for the groups of research scientists previously referred to in this report; a group of well-known creative writers produced a mean profile with much higher elevations (3, p. 8).

With regard to the profiles of individual subjects: seven had no scores of 70 or above, eight had one score of 70 or above, and one had two scores of 70 or above.

Scales on which scores of 70 or above appeared, and the frequency of their appearance, were: K (4), Mf (3), Ma (2),

Hy and Si (1).

The MMPI picture is one of relative freedom from psychiatric-type disorder or personal maladjustment, and of high similarity to others effective in similar occupations.

f. MMPI (special scales). Although a large number of the available special scales were scored for this group, comparative norms have so far been obtained only for the Barron Ego-Strength scale (2). The Everest team's average (in terms of raw score, not standard score) is given in Table 23, along with the averages of several other male groups (from reference 2, and from IPAR files).

Table 23
Barron Ego-Strength Scale
Means and Standard Deviations
(Raw Scores) for Various Groups

<u>Group</u>	<u>N</u>	<u>mean</u>	<u>S.D.</u>
Research Scientists	45	53.98	2.95
EVEREST TEAM	16	53.50	5.98
Psychology Graduate Students	40	50.92	5.62
Engineering Students	40	50.72	4.09
Military Officers	160	52.73	4.05
Clinic Diagnostic Cases	127	41.97	7.36
V.A. Mental Hygiene Clinic Cases	52	41.79	7.38

g. Bass Orientation Inventory. This technique provides three scores, each of which is meant to measure one of three orientations which should be related to "how a person reacts to the challenge of a job and to those working with him ..." (4, p. 1). These orientations (abstracted from the Manual) are:

- s - self-orientation: reflects the extent a person describes himself as expecting direct rewards to himself regardless of the job he is doing or the effects of what he does upon others working with him. A person with a high score is more likely to be rejected by others, to be introspective, to be dominating, and to be unresponsive to the needs of others around him.
- i - interaction-orientation: reflects the extent of concern with maintaining happy, harmonious relationships in a superficial sort of way. Interest in group activities is high but not ordinarily conducive to the progress of the group in completing tasks.
- t - task-orientation: reflects the extent to which a person is concerned about completing a job, solving problems, working persistently and doing the best job possible. In groups, despite his concern with the task, the task-oriented member tends to work hard within the group to make it productive as productive as possible.

Table 24 compares raw scores of the Everest team with those of various other groups (from 4, pp. 10-11).

Table 24
Bass Orientation Inventory
Means and Standard Deviations of Various Groups

<u>Self-orientation</u>	<u>N</u>	<u>mean</u>	<u>S.D.</u>
<u>Group</u>			
EVEREST TEAM	17	27.1	6.6
College Sophmores (Male)	233	25.1	6.3
Seniors and Graduate Students (Business and Engineering)	67	24.6	5.1

Supervisors of Foremen (Chemical Plant)	27	23.0	-
Technical Graduates, working in industry	74	22.6	6.0
Candidates for First-Line Foremen (Utilities)	48	20.6	-
First-Line Foremen (Chemical Plant)	66	18.4	-

Interaction-orientation

Candidates for First-Line Foremen (Utilities)	26.3	-	
First-Line Foremen (Chemical Plant)	26.0	-	
College Sophomores (Male)	24.4	6.0	
Seniors and Graduate Students (Business and Engineering)	23.6	6.4	
Supervisors of Foremen (Chemical Plant)	21.7	-	
Technical Graduates, working in Industry	19.8	5.9	
EVEREST TEAM	16.4	5.2	

Task-orientation

Technical Graduates, working in Industry	38.4	5.3	
EVEREST TEAM			
First-Line Foremen (Chemical Plant)	37.5	4.2	
Supervisors of Foremen (Chemical Plant)	36.8	-	
Candidates for First-Line Foremen (Utilities)	36.3	-	
Seniors and Graduate Students (Business and Engineering)	34.1	-	
College Sophomores (Male)	33.0	6.7	
	31.5	6.6	

According to Bass's remarks about occupational, educational and status, and maturational, effects on the various test scores, one might have anticipated the Everest team's high scores on Task- and low scores on Interaction-orientation. The relatively high scores on Self-orientation as well, while unanticipated from demographic information, are in line with other personality

test performances, and may be pointed to as another indication of an already noted (see pp. 24, 31) unusual combination of qualities in this group: qualities of competence and high-level skills which have required cooperation and subordination for their development, and at the same time qualities of self-assertion which, in some contexts at least, have been associated with poorer performance. Still, the order of magnitude of the three scores is: Task, Self, Interaction.

h. Welsh-Barron Art Scale. This scale consists of abstract drawings and designs, found empirically to distinguish artists from control samples. In view of the Everest group's high valuation of the Aesthetic area (AVL and simple ranking) and their high similarity of interest to that of Artists (Strong VIB), it is interesting to compare their esthetic sensitivity with other groups. The data appear in Table 25 (data on other groups is from IPAR files).

Table 25
Barron-Welsh Art Scale
Means and Standard Deviations of Various Groups

<u>Group</u>	<u>N</u>	<u>mean</u>	<u>S.D.</u>
Artists	30	39.1	13.8
Architects I*	40	37.1	9.8
Writers	19	32.9	11.1
EVEREST TEAM	16	32.7	
Research Scientists I	15	30.7	6.3
Architects II	43	29.5	10.1
Male Mathematicians I	26	26.9	12.7
Architects III	41	26.1	12.1
Research Scientists II	15	22.1	14.1
Male Mathematicians II	21	19.4	10.1
Research Scientists III	15	19.2	8.7
Unselected Adult Males	343	13.9	11.2

The group's values and interests mentioned above are supported by an appropriate sensitivity, as one would expect in a group as mature as this one and as relatively free from personal problems. That something besides just an esthetic sensitivity might be involved in these scores is suggested by the ordering, within Table 25, of the I-II-III or "creativity" hierarchy within each of the three professions appearing there. And since the Everest team was in no way selected for professional (occupational) "creativity", one wonders whether or not what is reflected in scores on this test might be a more general factor of "competence".

It should be noted here that data for one of the team is missing, and also that the score for one other subject is extremely atypical for the group; if the missing subject were substituted for the atypical one, the resulting new mean would almost surely then lie between Architects I and Writers (with a decreased S.D.)

C. Judgments of Assessors

During the three day assessment subjects not only responded to the tests reported on above (and more) but also were interviewed and observed informally by a team of assessors. These observations were quantified in the form of a) scores on adjective check lists filled out by the observers on each subject and then composited to provide a picture of the group as a whole; b) Q-sorts of 100 clinical-type personality-descriptive statements, also composited; and c) rankings of the individual team members on each of 11 personality dimensions. As these latter do not permit generalizations descriptive of the group, only the first two quantified judgements will be reported on here.

1. Adjective Check List (descriptions of climbers by assessors). There were assessors with three kinds of observational material: one group simply watched subjects in discussion or sat with them at meals; another group interviewed them; and the third group was the IPAR staff, whose data resembled closely that of the first group, but who have had much more experience with personality assessment and the specific techniques used in this study. The observers' ACLs (six of them) carried a weight of one in the final composite; the interviewer (two) and staff (four) ACLs carried weights of two. The resulting composite was scored on the same 24 scales as were discussed on pages 20 and 22; Table 26 lists the scales in the order of magnitude of the obtained standard

scores, and constitutes a description of the group by a set of outsiders.

Table 26

Gough Adjective Check List
(assessors describing climbers)

Means and Standard Deviations on the 24 Scales, for the Everest Group, Ranked in Order of Magnitude

<u>Scale</u>	<u>mean</u>	<u>S.D.</u>
Achievement	67.50	6.44
Endurance	66.81	7.13
Dominance	64.50	9.55
Order	62.63	8.71
Defensiveness (Good impression)	59.56	6.20
Self-Confidence	59.31	12.64
Self-Control	54.87	12.29
Autonomy	54.25	12.59
Intraception	53.69	8.98
Number of Favorable Adjectives Checked	52.94	8.14
Aggression	52.00	12.60
Personal Adjustment	51.56	9.25
Change	49.50	15.43
Affiliation	49.38	9.48
Total Number of Adjectives Checked	48.31	2.05
Nurturance	47.75	9.09
Heterosexuality	47.13	12.81
Lability	46.38	10.78
Exhibition	46.31	14.35
Number of Unfavorable Adjectives Checked	45.13	6.81
Counseling Readiness	44.69	11.86
Deference	43.88	12.43
Abasement	40.56	10.36
Succorance	37.94	4.70

Apparently, the way in which these men see themselves is in good accord with the picture they present to the world, as the correspondence between Table 15 and Table 26 is quite good (by inspection). The extremes are stretched out, so that

the assessors' judgements are more like the climbers' ideals for themselves than like their self-descriptions, especially at the upper end of the range. It could be argued from these tables that the assessors tended to underestimate what the team saw in itself as Intraception and Liability (psychological-mindedness and inner restlessness).

2. Clinical Q-sort. The set of 100 clinical items prepared by Block (5) and utilized in most of the IPAR studies of various professional groups was Q-sorted for each climber by at least two assessors and most often by four. For each item, the positions assigned each subject by each sorter were summed, then these sums were added over all subjects. From the resulting set of sums for the 100 items, describing the group as whole, those 10 items receiving the highest totals (i.e. most often placed at the "highly descriptive" end of the sorting continuum) and the 10 receiving the lowest totals (i.e. most often placed at the "not descriptive" end) were selected for presentation in Table 27.

Table 27

Items Considered Highly Descriptive
of the Everest Group

<u>Item</u>	<u>sum</u>	<u>% of possi- ble sum</u>
Is productive; gets things done.	435	81.9
Values own independence and autonomy.	434	81.7
Is a genuinely dependable and responsible person	426	80.2
Has high aspiration level for self.	410	77.2
Appears to have a high degree of intellectual capacity.	399	75.1

Behaves in a masculine style and manner	394	74.2
Concerned with own adequacy as a person, at conscious or unconscious levels	392	73.8
Appears straightforward, forthright, candid in dealings with others	387	72.9
Genuinely values intellectual and cognitive matters	381	71.8
Behaves in an ethically consistent manner; is consistent with own personal standards	380	71.6

Items Which Were Considered Not Descriptive of the Everset Group

<u>Item</u>	<u>sum</u>	<u>% of pos- sible sum</u>
Gives up and withdraws where possible in the face of frustration and adversity	19	27.9
Is guileful and deceitful, manipulative, opportunistic.	148	27.9
Has a brittle ego-defense system; has a small reserve of integration and would be disorganized and maladaptive when under stress.	173	32.5
Feels cheated and victimized by life; self-pitying.	177	33.3
Is subtly negativistic; tends to undermine obstruct or sabotage.	180	33.9
Reluctant to commit self to any definite course of action: tends to delay or avoid action.	182	34.3
Is self-defeating.	192	36.2
Genuinely submissive; accepts domination comfortably.	193	36.3
Is vulnerable to real or fancied threat, generally fearful.	194	36.5
Is unpredictable and changeable in behavior and attitudes.	196	36.9

The impression gained by the assessors was highly favorable, and shows the same emphasis on achievement, autonomy, aspiration, intellectual interest and good integration that appears in scores based on responses of the subjects themselves.

D. Post-Expedition Information

Among the items of information obtained following the return of the team to this country were responses to the following questions (actual wording is somewhat paraphrased here), which were intended to serve as performance criterion measures:

- * Q1. Which members would you choose as most (and least) desirable as leaders for another Expedition?
- * Q2. Which members would you choose as most (and least) desirable as team-mates for another Expedition?
- * Q3. Who seemed to you especially important to the group's morale?
- * Q4. Who seemed to you to participate the most in the group, to be the most involved in it?
- * Q5. Who seemed to have the best judgement concerning his own limits and capacities and physical condition?
- Q6. Was there anyone who seemed to you to make a special contribution to the general drive, to the group's desire to succeed?
- Q7. Was there anyone who seemed to you to be frequently trying to smooth out differences, looking for compromises, helping people feel comfortable together, etc?
- Q8. Was there anyone who seemed to you to be more interested in his own personal goals than in the group's goals?
- * Q9. Who seemed to have the most influence in the group?
- * Q10. Who seemed most at ease with himself, the least mixed-up, the most sure of what he wanted and who he was?

Q11. Was there anyone who left you feeling in large measure that he had revealed very little of himself; in other words, who would you say was the opposite of an open person?

Q12. Was there anyone who seemed to you to be frequently asserting himself, setting himself apart from group trends, maintaining his individual line of thought against the group mainly for the sake of being different?

*Q13. Who seemed to you, in a general way, to show the most maturity or personal development?

Q14. Please estimate the maximum amount of stress you experienced on this expedition.

Q15. Please indicate how the actual stress of the expedition compared with what you had expected to encounter on the trip.

The questions marked with an asterisk had the same format for response and could be treated alike; assigning each individual a score (simply the sum of ranks given him by all the other subjects), and ranking individuals according to these scores on a given question, makes it possible to compare rankings produced by the different questions.

Some of the resulting correlations (ranging from .35 to .95) are of interest. For example, consider the six correlations between Q2 (team-mate) and the other questions:

Q2 with:	Q13: .95 (Q1: .83)	Maturity (Leader)
	Q3: .81	Morale
	Q9: .79	Influence
	Q10: .78	Least mixed-up
	Q5: .68	Judgement
	Q4: .65	Participation

Although all the relationships are quite high (and thus reflect either the fact that all these characteristics influenced choice on Q2 or else a simple halo-effect), it would appear that factors having mostly to do with the quality of inter-personal relations are more important in determining response to this question than is the mountaineering-relevant factor of judgement. Q4's low rank is consistent here, too, as it reflects the fact that the interpersonal quality of some men's "participation" was deemed unpleasant or inappropriate by the group. Interestingly, the parallel set of six rhos comparing Q1 (leader) with others shows Q4 (participation) in first place (.91) as a "determiner" of this judgement.

Excluding Q1 and Q2, the highest mean rhos with the other rankings were obtained for Q13 and Q3 (maturity and morale). The lowest mean rhos with other rankings were obtained for Q5 and Q9 (judgement and influence). I am inclined to see in these figures an indication that in this group a person's general characteristics (in this case his competence in handling himself and in contributing to the affect of the group) are more important than specific or manipulative skills (in this case mountaineering judgement or social technique). Inferences about basic characteristics were being made, which were an important factor in the team member's views of one another.

Further to illustrate some of the implications contained in the correlation matrix: if one lists, under each of the Questions, the others in order of their correlation with the Question at the column head, Q4 (participation) is found at or

near the bottom of the list for all but two of the lists; these two are Q1 and Q9 (influence), in whose lists Q4 shows the highest correlation. Apparently, even if one's participation is slightly obnoxious, considerable influence can still be had simply by participating at a high level, in a group such as this. And both high participation and high influence begins to sound like an operational definition of a leader.

Considering now the ranked list of inter-correlations between Q10 (least mixed-up) and the other Questions, one finds that the highest relationship is with Q3 (morale) and that this is the second highest relationship in the matrix (.93). The lowest relationship is with Q9 (influence). Apparently, those who seemed most sure of themselves were good to have around, but did not necessarily have the most influence. And both things entered about equally into the decision as to whom one would like to go back with (ρ , Q2-Q9: .79; Q2-Q10: .78), whereas in the decision about a leader, influence was more important (.84) than was self-sureness (.59).

Finally, the group averages in response to Q14 and Q15, concerning experienced and expected stress respectively, are interesting. On a ten-point rating scale (5: no different from your previously most stressful experience in the mountains) the group rated its maximum experienced stress at 6.2 (range, 2-10), and the average experienced stress at 4.4 (range 1-10). Interestingly, those five men who experienced the goal-realization of personally reaching the summit gave a mean "average experienced stress" rating of 3.0, while the remaining team average was 5.0,

suggesting the stressful nature of failing to achieve goal-realization.

With respect to expected stress on this trip, the group mean rating of maximum-stress-compared-with-expectations (5: exactly as anticipated) was 4.7, and the rating of average-stress-compared-with-expectations was 3.9. These data support the author's subjective impression that stress was not as intensely experienced by the team as had been anticipated (by him), and is also in line with the failure of the physiological assays to show abnormal deviations in adreno-cortical functioning.

E. Summaries

Test results characterizing this group as a whole could be placed in their truest perspective, and used most accurately for descriptive and diagnostic purposes, only through a consideration for each technique of its construction, item content, test correlates, and behavioral concomitants. Obviously this is out of the question for such a large number of assessment techniques, and in view of the point that group diagnosis is not the primary purpose of this study. Nevertheless, central tendencies of the group on a number of techniques suggest the presence of real and common characteristics, and the following remarks are offered as one interpreter's survey of the picture presented by the Everest group as a whole.

1. Demographic Variables. This group of subjects was predominantly in the lower thirties in age, had a high level of education with special emphasis on physical science and technical fields, and was mostly married with children. They came from a predominantly Protestant background, and conventional religion did not play a large part in any of their lives. Political interest in the group was weak, and a conservative orientation was somewhat more characteristic than a liberal one. Only four of the group have no siblings, and the rest tend to be younger than their siblings.

The high educational level of the group has an important bearing on many of the test averages and trends, and appears

to be a distinguishing factor concerning the group of equal importance with their status as mountain-climbers.

2. Intellectual-cognitive techniques. Verbal intelligence is at a level consistent with high educational attainment, and probably intermediate in range among groups of similar attainment. As a group they are highly developed with regard to the use of logical and critical thinking and the evaluation of evidence - more so than with regard to their fund of general knowledge or their ability to sort out complex and emotionally charged interpersonal situations. But in none of these areas could their performance be considered poor.

3. Vocational interest patterns. Tested interests are closest to those of people in professional and technical occupations, and farthest from those in the more routine, impersonal, jobs and in sales work. Their interests are in the direction of careers giving opportunity for personal development and fulfillment and requiring a high level of learned skills. Attention to other test patterns in combination with this one suggests that interests tend toward involvement with human concerns, and with human beings as ends-in-themselves (rather than with people as objects and as means-to-ends) - but only insofar as such involvement can be combined with a high development of objective methods and skills, and with the retention of control over situations.

4. Attitude and value assessment. Two techniques dealing

with the six Spranger value areas agree well in showing a group consensus in placing a high value on the Theoretical (which may be defined as "interested primarily in empirical, critical, or rational matters - observing and reasoning, ordering and systematizing, discovering truths") and Aesthetic ("interested primarily in beauty, in form and harmony for its own sake - an artistic interpretation of life") areas. The Religious area was devalued (on the basis, probably, of a strictly conventional, "organized religion", interpretation of the term). Also devalued was The Economic area ("interested primarily in that which is useful and practical, especially the practical affairs of the business world"). Incidentally, in line with this, conversation in the field reflected a pervasive alienation from what the group perceived as the material or consumer orientation of American society.

The Social area ("interested primarily in other human beings - human relationships and love are very important") is in an intermediate position, which is where it ought to be to be consistent with the remarks made about implications of the Strong: the group puts human relationships and love above power and practicality, but second to the abstractions of theory and the impersonal standards of art. Interestingly, comparing their simple rankings of descriptions of the Spranger values with their AVL scores shows that subjectively they overestimate the importance of the Social area, and underestimate the Economic; there may be a gap here between their self-perceptions and their observable behavior which would make them appear to others as more practical and perhaps less person-

oriented than they appear to themselves.

In terms of the California "authoritarian" scales, between two arbitrarily chosen extremes of Military Officers and Graduate Students, the group falls much closer to the Graduate Students regarding Ethnocentrism and Fascism, and closer to the Military Officers regarding Political-Economic Conservatism.

Some of the personal qualities which the men valued in an "ideal climber" were consistent with what almost anyone would expect: Endurance, Achievement, Self-confidence, Self-control, and the like; the highest score, however, was somewhat surprisingly on Intraception, reflecting an extremely high value placed on the trait of desiring to, and attempting to, understand behavior. Affiliation, incidentally, was at the bottom of the High Value list. The personal qualities considered undesirable in the "ideal climber" strongly indicated that each would expect the other to maintain himself as an independent entity, showing absolutely no unnecessary dependence including the wish for sympathy or emotional support. This certainly fits very well with behavior observed in the field.

5. Personality, Personal Style, and Self-image assessment.

With regard to an Adjective check list, the picture is much the same as that for the "ideal climber" except at a lower level, but there are some provocative points of difference. They describe themselves as much higher on the Autonomy Scale than their ideal; according to Gough (11) the "high scorer on Autonomy is independent and autonomous, but also assertive and self-willed.

He tends to be indifferent to the feelings of others and heedless of their preferences when he himself wishes to act. The low scorer is of a moderate and even subdued disposition." So the men in this group tended to see themselves as potentially more difficult people than they would like to be ideally. This is further supported by other self-ideal comparisons, among which is the fact that they describe themselves as markedly lower on Self-Control than their ideal; again according to Gough, high-scorers (ideal) tend to be "serious, sober, responsive to obligations, diligent, practical", while low scorers (self) tend to be "headstrong, irresponsible, narcissistic, and impulsive". Remember that we are talking in relative, not absolute, terms here; absolutely, the group score on Self-Control was not low.

Regarding the other techniques in this area, the following summary remarks may be made:

- a. Test profiles in general (e.g. MMPI, CPI, EPPS) closely resemble those of other groups of advanced educational attainment, and particularly those in the psychiatric-psychological and the more creative occupations (such as architecture); e.g. on the CPI the Everest profile looks most like those of Psychiatric Residents, Architects, Graduate Students in Psychology, and City School Superintendents, and looks least like those of Salesmen, Correctional Officers, Machine Operators, and Prison Inmates. Where comparative norms can be broken down into more and less "creative" groups (here I draw on the work of IFAR with such groups as architects, research scientists, writers, and military

officers), quite often the Everest scores are closer to the "higher creative" groups than the lower.

b. The resemblance would seem to lie largely in a disposition that dislikes routine, is restless, interested in self-development and progress measured more by inner than by outer standards, and that seeks novelty. Perhaps the planned analysis of interview and projective test material will throw more light on why such a disposition finds its outlet more in such activities as mountain-climbing than in career development. In any case various test results suggest a quality of self-assertiveness (or self-will), impulsiveness (or spontaneity), rejection of convention - in a word, perhaps: assertive individuality. It seems to be the other side of this coin that they react strongly and negatively to any suggestion in personal relationships of submissiveness or abasement, of self-denial out of fear or out of a desire for anonymity, of indecision or anxiety.

c. The group tends to be introverted (in the sense of caring more about thoughts and ideas than about the external facts that stimulate them), and tends strongly to prefer intuition to sensing as a form of perception (in the sense that they are more interested in the possibilities than in actualities, have an ability to grasp the essence of complicated matters, enjoy learning a new skill or extending an old one more than using it proficiently but at a given level, and are impatient with routine details). And finally, using this more or less Jungian set of alternatives, they prefer thinking to feeling as a mode of reaching conclusions, and are more interested in understanding

others than in closeness with them.

6. Judgements of Assessors. The results of analyzing these in terms of composite adjective check list, and a composite Q-sort, show very close agreement with the personality testing results described above, and need not be discussed here.

7. Sociometric Questionnaire. Briefly, it appears that in making such a judgement as with whom one would like to return on a similar expedition, factors are given the most weight which have to do with the perceived quality of the other's interpersonal behavior: such things as his general level of maturity or integration, or his perceived contribution to the group's morale. Factors which have more specifically to do with mountaineering skills, such as degree of judgement about one's own limitations and capacities, carry less weight. This helps justify using the results of a sociometric analysis as one of the major performance criteria as was done in the Antarctic performance studies by the Navy (16).

IV. FINAL COMMENT

This report has concentrated on trends within the group rather than on individual differences, bringing the presentation of results of work on this study almost up to date. This survey has helped clarify and organize my own subjective impressions of the men from face-to-face contact, and has also raised several interesting questions concerning the group's similarity with other groups selected on an entirely different basis, namely for peer-rated "creativity". There would appear to be at least enough evidence of similarity to warrant a closer look at the data from this point of view; spelling out points of similarity and of difference should contribute to the connotative meaning of "creativity".

Even more broadly speaking, from the pattern of similarities with other highly effective groups one is tempted to suggest that the kind of data presented here points toward the description of a very general syndrome of "superior functioning", in line with psychology's efforts to move away from preoccupation with the pathological. If such a general picture can be drawn, then in the future more will be learned from contrasting various groups of individuals functioning at a superior level with one another than from contrasting them with the general population (or, more commonly, the general college population).

The immediate goal for current work on this project is a close look at the way individual differences on these various techniques inter-relate, how they relate to the sociometric

criteria, and what if anything they have to do with the emergence of dyads, triads, and larger affiliations within the total group. Also to be run are tests of many of Newcomb's (17) hypotheses concerning the development of stable interpersonal relations, hypotheses about the force generated by the strain of perceiving that another holds a differing orientation from one, individual differences in recognizing this strain, and differences in ways of coping with it when it is recognized.

Suggestions, comments, or questions, about matters reported in this paper or planned for the coming year, will be welcomed.



REFERENCES

1. Allport, G.W., P.E. Vernon, and G. Lindzey. Manual for the Study of Values (third edition). Boston: Houghton-Mifflin Company, 1960.
2. Barron, F. An ego-strength scale which predicts response to psychotherapy. *J. consult. Psychol.*, 1953, 17, 327-333.
3. Barron, F. Creative vision and expression in writing and painting. Proceedings of the Tahoe Conference on the Creative Person. Berkeley, California: Liberal Arts Dept., University Extension, University of California, 1961. Part II, pp. 1-19.
4. Bass, Bernard M. Manual for the Orientation Inventory (Research Edition). Palo Alto: Consulting Psychologists Press, Inc., 1962.
5. Block, J. The Q-sort method in personality assessment and psychiatric research. Springfield, Illinois: C.C. Thomas, 1961.
6. Cronbach, L.J., and G.C. Gleser. Assessing similarity between profiles. *Psychol. Bull.*, 1953, 50, 456-473.
7. Edwards, A.E. Manual for the Edwards Personal Preference Schedule. New York: The Psychological Corporation, 1954.
8. Gough, H.G. Range of information as a personality assessment variable. *American Psychologist*, 1956, 11, 356 (abstract).
9. Gough, H.G. Manual for the California Psychological Inventory. Palo Alto: Consulting Psychologists Press, 1957.
10. Gough, H.G., and G. Domino. The D 48 Test as a measure of general ability among grade school children. *J. consult. Psychology*, 1963, 27, no. 4, 344-349.
11. Gough, H.G., and A.B. Heilbrun, Jr. Manual for the Adjective Check List. Palo Alto: Consulting Psychologist Press, Inc., 1964 (in press).
12. Hathaway, S.R., and J.C. McKinley. Manual for the Minnesota Multiphasic Personality Inventory. New York: Psychological Corporation, 1943.
13. MacKinnon, D.W. Creativity in architects. Proceedings of the Tahoe Conference on the Creative Person. (see reference 3) Part V, pp. 1-24.

14. Murray, H.H., et al. Explorations in Personality. New York: Oxford University Press, 1938.
15. Myers, I.B. Some findings with regard to type and manual for the Myers-Briggs Type Indicator, Form E. Swarthmore, Pennsylvania: Privately printed, 1958.
16. Nelson, P.D., and E.K. Eric Gunderson. Effective individual performance in small Antarctic stations. U.S. Navy Med. NP Res. Unit, San Diego, Calif: Report No. 63-8, April 1963.
17. Newcomb, T.M. The Acquaintance Process. New York: Holt, Rinehart, and Winston, 1961.
18. Preliminary Manual for the D 48 Test (revised and adapted from the Manual for the French Edition by John C. Black, Ph.D.). Palo Alto: Consulting Psychologists Press, Inc., (no date).
19. Terman, L.M. Manual for the concept mastery test, Form T. New York: The Psychological Corporation, 1956.
20. Watson, G., and E.M. Glaser. Manual for the Watson-Glaser Critical Thinking Appraisal, Form Am. New York: World Book Company, 1952.